

IN THE CLAIMS:

Please amend the claims as follows:

1. (currently amended) In a neurostimulator implant system having multiple electrode contacts through which electrical stimuli are applied to tissue within a cochlea of a patient, and wherein an evoked compound action potential (ECAP) occurs in the tissue when an electrical stimulus of sufficient intensity has been applied to the tissue, and wherein the presence or absence of an ECAP in response to an applied stimulus serves as a useful objective indicator relative to the operation and functionality of the implant system, an improved method of eliciting an ECAP comprises ~~comprising the steps for:~~

implanting the multiple electrode contacts within the cochlea of the patient;

generating electrical stimuli with selectable degrees of intensity;

delivering the electrical stimuli to at least two of the multiple electrode contacts, such that the at least two electrode contacts output an electrical current into the tissue of the cochlea, the electrode contacts being arranged such that the electrical current output by the at least two electrode contacts combines to provoke a single ECAP in the tissue of the cochlea and, while delivering the electrical stimuli, gradually adjusting the intensity of the electrical stimuli and monitoring for the occurrence of said single ECAP with another separate electrode contact of the multiple electrode contacts;

noting the intensity of the applied electrical stimuli when the ECAP is first observed; and
using the intensity of the electrical stimuli applied to the at least two electrode contacts
that caused the ECAP to first occur as a guide to setting the intensity of the electrical stimuli of
the neurostimulator implant system during operation of the neurostimulator implant system.

2. (original) The method of Claim 1 wherein the step for delivering the
electrical stimuli to at least two of the multiple electrode contacts comprises delivering the
electrical stimuli to at least two adjacent electrode contacts of the multiple electrode contacts.

3. (currently amended) The method of Claim 2 wherein the step for monitoring
with at least one of the multiple electrode contacts for the occurrence of an ECAP comprises
monitoring with at least one electrode contact near the at least two adjacent electrode contacts ~~to~~
~~which the electrical stimuli is delivered for the occurrence of an ECAP.~~

4. (currently amended) The method of Claim 1 wherein the step for delivering the
electrical stimuli to the at least two adjacent electrode contacts of the multiple electrode contacts
comprises simultaneously delivering the electrical stimuli to the at least two adjacent electrode
contacts of the multiple electrode contacts.

5. (currently amended) The method of Claim 1 wherein the at least two electrode
contacts to which the electrical stimuli are ~~is~~ delivered comprises a first group of electrodes, and
wherein the method further includes;

continuing to deliver electrical stimuli of varying intensities to select different groups of at least two adjacent electrode contacts while monitoring with at least one electrode contact near the electrode contacts of the selected group for the occurrence of an ECAP;

noting the intensity of the applied electrical stimuli when the ECAP is first observed on the at least one electrode contact near the electrode contacts of the selected group;

forming a contour of intensity levels associated with all of the selected electrode groups of electrode contacts at which the ECAP is first observed; and

using the contour of intensity levels thus formed to define stimulation parameters thereafter used by the neurostimulation implant system to control the intensity of the electrical stimuli applied through the electrode contacts.

6. (original) The method of Claim 5 wherein each group of electrodes to which the electrical stimuli are delivered comprises at least four adjacent electrode contacts.

7. (currently amended) The method of Claim 2 wherein the step for delivering the electrical stimuli to the at least two adjacent electrode contacts of the multiple electrode contacts comprises sequentially delivering the electrical stimuli to the at least two adjacent electrode contacts of the multiple electrode contacts at a fast rate such that one occurrence of an ECAP is evoked.

8. (currently amended) The method of Claim 7 wherein the at least two electrode contacts to which the electrical stimuli are ~~is~~ delivered comprise a first group of electrodes, and wherein the method further includes;

continuing to deliver electrical stimuli of varying intensities to select different groups of at least two adjacent electrode contacts while monitoring with at least one electrode contact near the electrode contacts of the selected group for the occurrence of an ECAP;

noting the intensity of the applied electrical stimuli when the ECAP is first observed on the at least one electrode contact near the electrode contacts of the selected group;

forming a contour of intensity levels associated with all of the selected electrode groups of electrode contacts at which the ECAP is first observed; and

using the contour of intensity levels thus formed to define stimulation parameters thereafter used by the neurostimulation implant system to control the intensity of the electrical stimuli applied through the electrode contacts.

9. (original) The method of Claim 8 wherein each group of electrodes to which the electrical stimuli are delivered comprises at least four adjacent electrode contacts.

10. (currently amended) In a neurostimulator implant system having multiple spaced-apart electrode contacts for delivering electrical stimuli for stimulating tissue within a cochlea of a patient, said neurostimulator implant system being configured to elicit an evoked compound action potential (ECAP) from the tissue of the patient when an electrical stimulus of sufficient intensity is applied to the tissue, said system comprising:

means for generating electrical stimuli with selectable degrees of intensity;

means for delivering the electrical stimuli to at least two of the multiple electrode contacts, such that the at least two electrode contacts output an electrical current into the tissue of the cochlea, while gradually adjusting the intensity of the electrical stimuli, the electrode contacts being arranged such that the electrical current output by the at least two electrode contacts combines to provoke a single ECAP in the tissue within the cochlea;

means for monitoring with another separate electrode contact of the multiple electrode contacts while the electrical stimuli are being delivered for the occurrence of said single ECAP, said separate electrode contact ~~that is monitored~~ being located near the at least two multiple electrode contacts to which the electrical stimuli are ~~is~~ delivered;

means for noting the intensity of the applied electrical stimuli when the ECAP is first observed; and

means for using the intensity of the electrical stimuli applied to the at least two electrode contacts that caused the ECAP to first occur as a guide to setting the intensity of the electrical stimuli of the neurostimulator implant system during operation of the neurostimulator implant system.

11. (original) The system of Claim 10 wherein the means for delivering the electrical stimuli to at least two of the multiple electrode contacts comprises means for delivering the electrical stimuli to at least two adjacent electrode contacts of the multiple electrode contacts.

12. (original) The system of Claim 11 wherein the means for delivering the electrical stimuli to at least two adjacent electrode contacts comprises means for simultaneously delivering the electrical stimuli to the at least two adjacent electrode contacts of the multiple electrode contacts.

13. (currently amended) The system of Claim 12 wherein the at least two electrode contacts to which the electrical stimuli are ~~is~~ delivered comprises a first group of electrodes, and wherein the system further includes;

means for delivering electrical stimuli of varying intensities to select different groups of at least two adjacent electrode contacts while monitoring at least one electrode contact near the electrode contacts of the selected group for the occurrence of an ECAP;

means for noting the intensity of the applied electrical stimuli when the ECAP is first observed on the at least one electrode contact near the electrode contacts of the selected group;

means for forming a contour of intensity levels associated with all of the selected electrode groups of electrode contacts at which the ECAP is first observed; and

means for using the contour of intensity levels thus formed to define stimulation parameters thereafter used by the neurostimulation implant system to control the intensity of the electrical stimuli applied through the electrode contacts.

14. (previously presented) The system of Claim 11 wherein the means for delivering the electrical stimuli to at least two adjacent electrode contacts comprises means for sequentially delivering at a fast rate the electrical stimuli to the at least two adjacent electrode contacts of the multiple electrode contacts so as to evoke one occurrence of an ECAP.

15. (currently amended) The system of Claim 14 wherein the at least two electrode contacts to which the electrical stimuli are ~~is~~ delivered comprises a first group of electrodes, and wherein the system further includes;

means for delivering electrical stimuli of varying intensities to select different groups of at least two adjacent electrode contacts while monitoring at least one electrode contact near the electrode contacts of the selected group for the occurrence of an ECAP;

means for noting the intensity of the applied electrical stimuli when the ECAP is first observed on the at least one electrode contact near the electrode contacts of the selected group;

means for forming a contour of intensity levels associated with all of the selected electrode groups of electrode contacts at which the ECAP is first observed; and

means for using the contour of intensity levels thus formed to define stimulation parameters thereafter used by the neurostimulation implant system to control the intensity of the electrical stimuli applied through the electrode contacts.

16-23. (canceled)

24. (new) A system comprising:

a neurostimulator configured to be implanted within a patient;

an electrode array electrically coupled to said neurostimulator, said electrode array comprising a plurality of electrode contacts and configured to be implanted within a cochlea of said patient;

wherein said neurostimulator is further configured to elicit an evoked compound action potential (ECAP) by delivering an electrical stimulation current to said cochlea via at least two of said electrode contacts; and

wherein another one of said plurality of electrode contacts is configured to monitor for an occurrence of said ECAP while said electrical stimulation current is delivered via said at least two of said electrode contacts.

25. (new) The system of claim 24, wherein said at least two of said electrode contacts comprise adjacent electrode contacts.

26. (new) The system of claim 24, further comprising:

means for noting an intensity of said electrical stimulation current that elicits said ECAP;

and

means for using said intensity of said electrical stimulation current to set one or more stimulation parameters of said neurostimulator.